Another feature of the user display 30 can be to display the fuel level and time to empty for generators with fuel tanks, such as those powered by combustion engines or fuel cells using a stored supply of hydrogen, or any generator that incorporates a form of energy or fuel storage. Fuel storage status in terms of the quantity of fuel and the time to empty, can be transmitted by the generator monitor 10. The fuel level status can be added to the screen on the user display 30 for quick reference. Although remote fuel monitoring is common in many areas, the embodiment of this invention is unique in combining the fuel monitoring function with some or all of the other functions in the user display. By combining these features in one unit, the cost of each process is reduced and a more complete status of the homes power system is presented to the user on one screen.

In the embodiment of the invention it is also possible to control changes in reference outputs in the individual interrupt switches and user displays. This requires more manual settings on the part of the installer or user, but can be managed effectively. In this configuration, the interrupt switches and user displays execute adjustments to the calculated GAP levels. The GAP levels transmitted from the generator monitor 10 have an additional power level subtracted from the received GAP level, with the reduced GAP level used by either the interrupt switch 20 or the user display 30. This can be a way of assigning a unique priority for power to each automatic appliance and to the appliances in the area of the user display. GAP levels can also be changed based on time of day with the incorporation of clock functions in the interrupt switches and user displays. This allows the switching of power priorities during the day from one appliance to another. This embodiment of the invention can be a more complicated system to design, set up, and manage, however this functionality may be useful in situations where priorities are very detailed and users want an extensive level of control.

Examples

1. A home with a generator capable of 4500-Watt surge and 4000-Watt continuous. The home also has two automatic appliances that turn themselves on and off. The automatic appliances are the refrigerator and a blower motor on the oil burner. Overall, this system can function acceptably with the occupants of the home developing an intuitive feel for what the generator can and cannot support. This perception may result in an occasional tripping of the circuit breaker or non at all depending on the level of caution exercised by the occupants.

A minimal implementation of the invention makes an incremental but noticeable improvement in the utility derived from the generator. First a generator monitor 10 is installed on the generator and an interrupt switch 20 on the refrigerator. Given this is a minimal configuration, the only other automatic appliance in the home, a blower motor on the furnace, is not given an interrupt switch. User displays are installed in the kitchen and bathroom. Two sets of reference outputs are input into the generator monitor. The first reference outputs SR1 and CR1 are the rated surge and continuous capacities of the generator. The interrupt switch 20 on the refrigerator is set to monitor this first GAP level calculated from SR1 and CR1. The second set of reference outputs are for the user displays 30 and account for the heating system blower motor starting at any time. To do this the surge load of the heating system is subtracted from the rated surge capability of the generator resulting in the value SR2. To calculate CR2 the continuous load of the heating system is subtracted from the rated continuous capability of the generator. This causes the user displays to present a GAP or available power level to the occupants that allows for the heating system activating at any time.

Given this system is not a complete implementation on all appliances in the home; it is slightly less reliable. However, the assurance that the refrigerator cannot start when its load can trip the circuit breaker, greatly reduces the number of times the circuit breaker trips. Users also avoid tripping the circuit breaker if they simply check the user displays before activating appliances. Also, this system informs the user when they can activate an appliance as opposed to the user's conservative "feel" method. Running on the generator, there are many times when both the refrigerator and oil burner blower motor

are cycled off causing most of the generators capacity to be unused. Under the conservative feel method, occupants might not activate the microwave or toaster oven due to past experiences when activating these manual appliances, tripped the circuit breaker, due to a condition where they were activated when both the refrigerator and the oil burner blower motor were running and applying their electric loads to the generator. This minimal implementation of one embodiment of the invention, enhances the utility and convenience of the generator by preventing one of the automatic appliances (refrigerator) from tripping the circuit breaker and by informing the users of the generator's momentary capacity.

2. A family has a camping generator, rated at 2300-Watts surge (GS) and 2000-Watts continuous (GC), and would like to support the appliances in Table 2-A below.

Automatic Appliance	**Surge**	**Continuous**
Clocks, night lights, system device loads, etc.		200-Watts
Well Water Pump	1700-Watts	650-Watts
Refrigerator	2000-Watts	700-Watts
Basement Sump Pump	1700-Watts	650-Watts
Heating System Motor	900-Watts	400-Watts

Table 2-A

In this implementation, the four automatic appliances in Table 2-A have interrupt switches 20 supporting them. There is one set of reference outputs, at the rated capacity of the generator, set on the generator monitor 10. The generator monitor 10 calculates and transmits one GAPS and one GAPC level. This configuration of the present invention, still encourages the family to use flashlights and candles, but provides water pressure, heat, refrigeration and a dry basement on a generator that otherwise could only support one or two of the appliances listed above.